



# ENVS3241

## Active Environments

Session 3, In person-fieldwork, On location 2023

*School of Natural Sciences*

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#### **Disclaimer**

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## General Information

### Unit convenor and teaching staff

#### Convenor

Paul Hesse

[paul.hesse@mq.edu.au](mailto:paul.hesse@mq.edu.au)

#### Contact via email

12WW 228 (level 2)

#### Lecturer

Damian Gore

[damian.gore@mq.edu.au](mailto:damian.gore@mq.edu.au)

#### Contact via email

12WW 124 (level 1)

### Credit points

10

### Prerequisites

(130cp at 1000 level or above) and permission by special approval

### Corequisites

### Co-badged status

### Unit description

This is a Session 3 unit that explores the active environments of the South Island of New Zealand. On an 11 day fieldtrip in December, landscape dynamics in tectonically, glacially and fluvially active landscapes are examined. The geomorphology and Quaternary evolution of the systems are contrasted with those of the Australian landmass examined in other units in Earth and Environmental Sciences courses. Students must cover the cost of transport, accommodation and food during the fieldtrip. Indicative cost: AUD\$1500. Students may be eligible for a grant from the University towards the cost of the trip.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** Demonstrate field skills, including (a) describe and sketch soil and sediment

sections in the field using standard methods, (b) take clear and comprehensive field notes using standard approaches, (c) survey topography (tape and clino), compute and plot data, (d) analyse hydrology using river styles and river planform description/ classification, measure and interpret dissolved, suspended and traction load of rivers, (e) identify hazards associated with mountain landscapes.

**ULO2:** Demonstrate your ability to 'Read the landscape' through morphodynamic description and analyses, and through geomorphic mapping in GIS.

**ULO4:** Demonstrate critical thinking in your reading of the literature and interpretation of your own data.

**ULO3:** Analyse numerical data using statistical tools.

**ULO5:** Design a field research project including data gathering and interpret your own data.

**ULO6:** Communicate scientific information and concepts through oral, visual and written formats.

## General Assessment Information

### What is required to complete this unit satisfactorily?

Attendance: (fairly obvious) you have to turn up to complete the unit

Assignments: you must hand in/complete ALL the assessment tasks to complete the unit

Attitude: look, read, ask, discuss, debate, enjoy (it's an amazing landscape to be in)

Quality: your assessment items will be graded according to your achievement of the learning outcomes. We are looking for deep understanding as well as competence in particular skills of data collection, analysis, interpretation and presentation.

Honesty and sharing: you will often work in groups but all the assessment tasks are individual. Group data must be shared freely but presentation, writing up and interpretation are to be the efforts of each individual. Macquarie's procedures relating to **academic honesty** and **plagiarism** can be found at [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html)

### Late Assessment Submission

Late assessments are not accepted in this unit unless a [Special Consideration](#) has been submitted and approved

### Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events

that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through [ask.mq.edu.au](https://ask.mq.edu.au).

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">A4 Hanout</a>	10%	No	4/12/23
<a href="#">Field notebook</a>	30%	No	13/12/23
<a href="#">Field Report</a>	50%	No	13/12/23
<a href="#">Oral Presentation</a>	10%	No	4/12/23

### A4 Hanout

Assessment Type <sup>1</sup>: Literature review

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **4/12/23**

Weighting: **10%**

Each student will explain and illustrate a topic using no more than one (1) A4 sheet of paper (using both sides, and listing any references you cite). You should have read and cited at least 3 primary, peer-reviewed sources. Assessment will be on the clarity and quality (accuracy, relevance, currency, organisation) of the 1-sheet handout.

On successful completion you will be able to:

- Demonstrate critical thinking in your reading of the literature and interpretation of your own data.
- Communicate scientific information and concepts through oral, visual and written formats.

### Field notebook

Assessment Type <sup>1</sup>: Field book

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **13/12/23**

Weighting: **30%**

You must submit your field notebook for assessment at the end of the fieldtrip at Queenstown. This field book should contain all your observations made throughout the trip, including your

group research project. You will be assessed according to (1) completeness, (2) accuracy, (3) clarity and (4) understanding of both notes and diagrams.

On successful completion you will be able to:

- Demonstrate field skills, including (a) describe and sketch soil and sediment sections in the field using standard methods, (b) take clear and comprehensive field notes using standard approaches, (c) survey topography (tape and clino), compute and plot data, (d) analyse hydrology using river styles and river planform description/classification, measure and interpret dissolved, suspended and traction load of rivers, (e) identify hazards associated with mountain landscapes.
- Demonstrate your ability to 'Read the landscape' through morphodynamic description and analyses, and through geomorphic mapping in GIS.
- Analyse numerical data using statistical tools.
- Design a field research project including data gathering and interpret your own data.
- Communicate scientific information and concepts through oral, visual and written formats.

## Field Report

Assessment Type <sup>1</sup>: Report

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **13/12/23**

Weighting: **50%**

Using the data collected during your fieldtrip, prepare an individual scientific report or conference-style presentation on your project. You will use the group data collected in the field and made available freely in NZ. You should treat the numerical data in a statistical manner to see whether or not your interpretations of the data are justifiable. This assignment will incorporate reference to relevant available literature and your field data to form a detailed understanding of that environment. All reports will be assessed on the evidence of accurate data gathering, accurate interpretation, critical analysis in relation to literature, clarity and suitability of the design of the project, insight of geomorphic interpretations of the data and clarity, structure and accuracy of the presentation.

On successful completion you will be able to:

- Demonstrate field skills, including (a) describe and sketch soil and sediment sections in the field using standard methods, (b) take clear and comprehensive field notes using

standard approaches, (c) survey topography (tape and clino), compute and plot data, (d) analyse hydrology using river styles and river planform description/classification, measure and interpret dissolved, suspended and traction load of rivers, (e) identify hazards associated with mountain landscapes.

- Demonstrate your ability to 'Read the landscape' through morphodynamic description and analyses, and through geomorphic mapping in GIS.
- Demonstrate critical thinking in your reading of the literature and interpretation of your own data.
- Analyse numerical data using statistical tools.
- Design a field research project including data gathering and interpret your own data.
- Communicate scientific information and concepts through oral, visual and written formats.

## Oral Presentation

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **4/12/23**

Weighting: **10%**

Each student will also give a 5 minute oral presentation on their topic, in the field and using only their 1 sheet (single or double-sided) handout and the landscape as resources. This will occur at intervals throughout the first four days of the trip. Assessment will be on the clarity and quality (coherence, audibility, use of resources, ability to answer questions) of the oral presentation. This will be *peer-assessed* (i.e. you will grade, and be graded by, your classmates). Your grade will be adjusted according to how many peer marks you return (i.e. full marks if you mark all your peers; half marks if you mark only 50% of your peers).

On successful completion you will be able to:

- Demonstrate your ability to 'Read the landscape' through morphodynamic description and analyses, and through geomorphic mapping in GIS.
- Demonstrate critical thinking in your reading of the literature and interpretation of your own data.
- Communicate scientific information and concepts through oral, visual and written formats.

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

### Aims of the fieldtrip:

(refer also to the learning outcomes)

Australian sedimentary character and transfer processes reflect the slow and episodic tempo of geomorphic processes on this continent. The dominance of chemical weathering processes and the extremely long storage time of sediments results in the almost-complete conversion of most silicate minerals in sediments to clay minerals. The low relief of Australia also results in rather slow transfer of weathering products to the sedimentary basins. One other characteristic of Australia makes this area unusual: there has been very little tectonic activity during the Quaternary (the last 2.6 Ma). As a consequence, the geomorphology of Quaternary deposits, the nature of their contained sediments and their transfer processes contrast strongly with those of the Pacific Rim steepland environments. We intend to address this contrast through an 11-day field trip to the South Island of New Zealand.

### Required and recommended readings

There are no set texts or readings. You must research the topic of your A4 handout and oral presentations using peer-reviewed scientific literature. On-line materials should also be peer-reviewed and fully references wherever possible.

You are asked to write your final report in the field. Bring the papers that you have found so we can pool them to create a mobile working library.

### Technology used and required

We will be working in a remote environment – both remote from help and remote from Macquarie Uni – and this imposes some limitations on the technology we can use (i.e. what we can carry).

We will use mostly very simple technology in the field. **What you should buy and bring:** hand lens; camera; notebook; calculator; USB memory stick **What we will provide that you must carry:** augers, survey equipment, spades etc, tape measures, GPS, geological hammer, grain size card, safety equipment.

If you have a **laptop computer** you will find it useful for producing your report. Some are available for loan from Department of Earth and Environmental Sciences. If you need to borrow one of these laptops, please contact Paul and arrange for pickup before the field trip. Remember that ArcGIS only runs on Windows. If you have a Mac you can (potentially) partition your hard drive and install windows (at cost) on one side (using bootcamp to switch

between operating systems), enabling you to install ArcGIS.

For your pre-field A4 report you are expected to undertake research using on-line research databases and electronic journals and other resources. Internet will be limited or unavailable in the field.

### **Methods of Communication**

We will communicate with you via your university email and through announcements on iLearn. Queries to the convenor should be sent to the unit convenor directly via the contact email on iLearn.

### **COVID Information**

For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: <https://www.mq.edu.au/about/coronavirus-faqs>. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

## **Unit Schedule**

### **Timetable and Itinerary**

Pre-field meeting (Monday 27 November 10-4): We will hold a field safety induction session before the fieldtrip. We have also continued to work on improving GIS skills. This includes a day of safety induction, orientation and mapping on campus before the fieldtrip and a separate software installation clinic for those who need it. The map data will help orient you to the field area and the GIS skills will be useful to you when you are doing your research project and report in the field.

Day 1 (Mon 4<sup>th</sup> Dec): Sydney to Queenstown (you can fly independently but meet flight QF121 at 2.30 pm in Queenstown). Begin student presentations and scientific stops. Visit sites in Queenstown area. Stay at Queenstown.

Day 2-4: Drive to Mt Cook Village via Lindis Pass (~6 hours). Short student presentations along the way. Stay at Aoraki/Mt Cook Village. On day 4 visit Tasman Glacier and Tasman River outwash plain and then return to Twizel.

Day 5: Research projects in the Hopkins valley and vicinity of Twizel.

Day 6: Class on data analysis. Scout field projects.

Day 7-9: Continue work on field projects in Twizel area.

Day 10: Travel to Queenstown. Stay in Queenstown.

Day 11 (Thurs 14<sup>th</sup> Dec): Free morning; transfer to airport in time for 1 pm flight to Sydney (QF124).



## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## The Writing Centre

The [Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Changes from Previous Offering

We value student feedback to be able to continually improve the way we offer our units. As such we encourage students to provide constructive feedback via student surveys, to the teaching staff directly, or via the FSE Student Experience & Feedback link in the iLearn page.

## Fieldwork

### Cost

Accommodation (paid to University before the trip): to be advised by email and iLearn

Food – covered by you. There are cooking facilities at all of our accommodation locations as well as options to eat out (although that can be quite expensive at Mt Cook).

On ground Transport in New Zealand – (paid to University before the trip): to be advised by email and iLearn

Airfare - to be booked and paid for by you.

### Accommodation

We have booked all accommodation for the fieldtrip. You will be asked to pay the final amount (once confirmed) to the University (online).

All locations have the option of cooking in attached kitchens or eating locally.

There is a laundry attached to our accommodation in Twizel (from 4th night, for 6 nights).

You should bring a towel but you do not need to bring a sleeping bag.

### Personal field equipment required

Each student should bring the following aids/comforts on each field trip:

- sturdy shoes ('no visible skin below the ankles')- sandals, thongs, or high heels are for après-field activities
- an extra pair of shoes for getting wet in rivers
- water bottle (full, of course!)
- wet weather gear – a waterproof jacket with a hood and waterproof pants
- hat (with a wide brim, front and back) and sunscreen
- field note book and pencils (see note below)
- calculator, hand lens
- camera; binoculars (if you have them)
- your lunch, drinks & snacks for the day - we do not stop at shops!!!
- a back pack to store it all in
- any medications you may need. We cannot provide you ANY medications (even paracetamol).

### Other personal items

towel/toiletries – bring these.

### Fieldwork fundamentals

**Weather:** We never cancel fieldtrips for bad weather! You must be prepared to work in the rain with the appropriate clothing. Likewise you should always protect yourself from the sun and dehydration.

**Transport:** Will be in minibuses driven by staff.

**Cost:** You must cover your own food costs and pay for your transport. Prior to the fieldtrip you will be advised of the estimated cost for accommodation. You must pay this amount before leaving on the fieldtrip.

**Accommodation:** Accommodation is in dorm /shared rooms with communal kitchens, dining, bathroom/toilet and work areas. You should bring a towel.

### **Safety in the field**

Any student who has a disability or health condition that may limit their participation in field work or that could result in a medical emergency in the field should notify the unit convenor immediately and through Field Friendly. As a general guide to the level of physical fitness required, you should be able to walk 10 km over open undulating terrain in 2 hours. You must accept the fieldtrip invitation in Field Friendly before the fieldtrip and complete your contact and personal details there.

***Each student must ensure his/her own safety at all times during field excursions.***

- Do not undertake fieldwork alone. You must work with at least one other person.
- You must be adequately equipped to undertake fieldwork, including wet weather clothing, warm clothing, hat and sun protection, protective footwear (closed toe boots or shoes).
- You should bring a first aid kit if you have one (basic kits will be provided to each group) and any medications you require.
- Do not undertake any activity you feel to be unsafe. Discuss with the fieldtrip leader any concerns you have about particular tasks.
- Be watchful of the safety of your fellow students, if they become separated from the group or are at some other risk. Tell the fieldtrip leader as soon as you notice a potentially dangerous situation.